Section 5.0
Other Technology Requirements

5.1 Environmental Regulation Requirements

State and local regulatory agencies may require permits prior to implementing a BDN technology. Most federal permits will be issued by the authorized state agency. An air permit issued by the state Air Quality Control Region may be required if an air stripper is utilized as part of the post-treatment system (i.e., if the air emissions are of toxic concern or anticipated to be in excess of regulatory criteria). Wastewater discharge permits may be required if any such wastewater were to be discharged to a POTW. If remediation is conducted at a Superfund site, federal agencies, primarily the U.S. EPA, will provide regulatory oversight. If off-site disposal of contaminated waste is required, the waste must be taken to the disposal facility by a licensed transporter. Section 2 of this report discusses the environmental regulations that may apply to the EcoMat Inc. BDN treatment process.

5.2 Personnel Issues

The number of personnel required to operate the EcoMat Biodenitrification technology should be small and is not critically dependent on the size of the treatment system. Large systems may, however, require extensive site preparation and assembly operations that may require several individuals (inclusive of contractors), especially if there are constraints on time. For smaller treatment systems, requiring minimal site preparation, as few as one person may be needed to assemble and conduct the initial startup testing of the system.

During the demonstration EcoMat, in most instances, had one company employee at the pilot unit. They also had one local person to periodically monitor the system and collect samples in their absence. Estimated labor requirements for a full-scale 100 gpm system are discussed in detail in Section 3 of this report.

During the demonstration sampling events, two SITE team members were required to conduct field measurements and to collect and prepare samples. Personnel present during sample collection activities at a hazardous waste site must have current OSHA health and safety certification. Although the BDN technology targets nitrate and other inorganic contaminants, gas detection tubes should be used to monitor the air in the vicinity of the treatment system to monitor for sulfide, chlorine, ozone, and other potential gases. Respiratory protective equipment may be needed in rare instances, but are not anticipated.

At sites with greater complexity and risk, the personnel protective equipment (PPE) for workers will include steel-toed shoes or boots, safety glasses, hard hats, and chemical resistant gloves. Depending on contaminant types, additional PPE (such as respirators) may be required. Noise levels would usually not be a concern. However, loud pumps for larger systems could create appreciable noise. Thus, noise levels should be monitored to ensure that workers are not exposed to noise levels above the time weighted average of 85 decibels over an 8-hour day. If this level is exceeded and cannot be reduced, workers would be required to wear hearing protection.

5.3 Community Acceptance

Potential hazards to a surrounding community may include exposure to air emissions of VOCs, if those contaminants are also present in the water stream (along with the nitrates). Ozone and chlorine emissions are also possible if such post-treatment is incorporated.

Overall, there are few environmental disturbances associated with the BDN processes. No appreciable noise is anticipated beyond that generated by the short term use of power washing equipment (used during general maintenance), or by excessively loud pumps. Since most units are contained in a secured building, disturbances from the system are kept within the building confines.